

iIPSC-MSG-30

Two Axes Gyro Stabilized Gimballed Naval Platform for up to 30 kg Payload

Key Features

- Two-axes gyro stabilized platform for EO/IR and antenna payloads with integrated INS/GNSS based geo-referencing. Powerful LOS (line-of-sight) control with open control interface.
- Due to customized mounting tray (IR, micro-bolometer, daylight camera, LRF, antennas, weapons etc.) adaptable to arbitrary RF and EO/IR sensors; balanced payload up to 15 kg for high dynamics and 30 kg for standard dynamics (customized solutions on request).
- Direct torque drives allow highest resolution, negligible hysteresis & fast dynamics (>> 100 °/s, >> 100 °/s²).
- Optical sliprings for signal transmission, gold plated sliprings for power transmission; cable wrap as option.
- Available Features:
 - iSCU: Gyro based Stabilization and Control Unit with interface for remote control (ETH, CAN)
 - iOET²: opto-electronic Video Target Tracker
 - iJP: Joystick Panel for control
 - INS/GNSS: geo-referencing with down to centimeter-level accuracy and for blind-pointing support
 - Video Fusion, Image Blending
- Designed to operate in harsh environment, on trucks and on naval vessels.



Description Direct drive brushless servo motors, combined with high resolution encoders are ensuring the precise and smooth tracking of the iIPSC-MSG. All axes are sealed. The selected materials are corrosion resistant and surface treated to withstand harsh land based, airborne or shipborne environmental conditions. Due to its open architecture, the instrument can be equipped with all kinds of cameras (e.g. ZEISS™ ATTICA or other cooled thermal imagers or micro bolometers, daylight cameras), laser range finders or special equipment like energy lasers or antennas.

iMAR Navigation GmbH, located in Germany, is designer, manufacturer and system integrator of the entire iIPSC-MSG (mechanics, electronics, gyro stabilization, INS/GNSS data fusion and motion control). Customer specific adaptations can be provided on request.

Options

- integrated roll axis assembly, enabling 3 DOF stabilization.
- iOET² Opto Electronic Target Tracking for Auto Video Tracking, with multi target capability and fast 50 or 100 measurements per second. Integrated video recording and time stamping as option.
- Dynamic gyro stabilization with integrated INS/GPS positioning, including true north referencing / geo-referencing for target localization with sub-decimeter performance (e.g. with iNAT-M200, iNAT-FSSG, iNAT-FSLG or iNAT-RQT).
- Optional spring isolated base plate to prevent high frequency environmental disturbance from the instrument.
- Window cleaning utility (wiper); forced cooling for payload (air or water).



Specification Summary

General Configuration	Payload:	customer specific or standard sensors (see separate datasheet "iIPSC Payload Selection")		
	Payload weight, nominal:	15 kg on centered, balanced platform, 30 kg with reduced dynamics		
	Payload Signals:	Slip rings for power supply, video and discretes, fiber optic transmission for signals and video, adaptable according to application requests		
	Power Consumption: Platform Weight:	up to 1'000 W, 48 VAC (depends on acceleration) approx. 60 kg plus payload (depends on options)		
Performance (subject to specific offer)	Angular freedom (deg) Position	Azimuth continuous	Elevation continuous	
	<ul style="list-style-type: none"> ● encoder resolution ● resolution shaft ● repeatability (static) 	better 20 bit < 5 arcsec < 100 µrad	better 20 bit < 5 arcsec < 100 µrad	
	Rate (deg/sec)	> ±100	> ±100	
	Acceleration (deg/sec ²)	> ±100	> ±100 [30 kg payload]	
	Acceleration (deg/sec ²)	> ±200	> ±200 [15 kg payload]	
	Torque cont./peak (Nm)	4 / 16	3.5 / 8.3	
	Perpendicularity (arcsec)	<±100	<±100	
	Environment	Operating Temperature	-20 °C to +55 °C (other on request)	
		Altitude	up to 4'000 m above sea level or tbd.	
		Vibration, Shock, EMI, EMC	MIL-STD810G, MIL-STD461G	
Gyro Stabilization (option)	Stabilization Performance	iNAT-RQT: < 200 µrad abs. roll/pitch stabilization < 1 mrad abs. heading stabilization < 50 µrad relative stabilization		
		iNAT-FSSG-01: < 200 µrad relative stabilization		
		< 0.05 m, 0.02 deg roll/pitch, up to 0.03 deg true heading		
Geo-Referencing (option)	Position and Attitude Performance	< 0.3 deg GNSS dual antenna / 0.03 deg sec lat gyro comp.		
True North Capability (option)	Gyro compassing or GNSS based	iOET ² : 50 Hz / 100 Hz, video target tracking, image blending		
Image Target Tracker	Stabilization Feedback	via Ethernet / CAN / UART or / and joystick (see iMAR's iSCU interface)		
Command / Remote Control				

Payload
The system can be delivered with special adaptation to customer's payload. Payload can be provided by the customer or by iMAR and integrated at iMAR facilities.

